REMARKS

Claims 1-3, 7-8 and 10-14 stand rejected under 35 U.S.C. § 102(b) over "Run-Based Algorithm for Binary Image Analysis and Processing" by Di Zenzo et al. Claim 1 calls for a method including identifying a representation of a binary image in a pixel matrix, wherein the pixel matrix comprises a plurality of portions. The method of claim 1 further includes computing the number of runs for a first portion of the pixel matrix, wherein a run is a maximal sequence of pixels having a predetermined value in the first portion, computing the number of neighboring runs between the first portion and a second portion of the pixel matrix, wherein a neighboring run is a run in which at least one pixel of the run is in the neighborhood of a run in an adjacent portion, and computing the Euler number from the number of runs and the number of neighboring runs. However, there is no teaching of a pixel matrix based computing of the Euler number of a binary image.

Instead, Di Zenzo teaches run-based algorithms for binary image analysis and processing in which a variant of binary image called graph representation is computed from the run representation, which is a binary image that is completely specified by a linked list of its runs being maximal sequences of 1's in a column/row. The Di Zenzo references does not teach computing the number of neighboring runs and computing the Euler number from the number of runs and the number of neighboring runs. Moreover, there is no teaching whatsoever of identifying a representation of a binary image in a pixel matrix wherein the pixel matrix comprises a plurality of portions.

Accordingly, the method of claim 1 is not anticipated by the Di Zenzo reference. The Examiner is respectfully requested to reconsider the § 102 rejection of claim 1 and allow claim and the claims depending therefrom because the Di Zenzo reference fails to anticipate all the limitations therein. For at least the reason that dependent claims 2-4 depend from an allowable independent claim, these claims are in condition for allowance, which is respectfully requested of the Examiner.

The system of claim 7 comprises a run processor and a neighboring run processor. The run processor may complete a run number, wherein the run number is the number of runs in a portion of a pixel matrix. That neighboring run processor may compute a neighboring run number, wherein the neighboring run number is the number of neighboring runs between the portion and a second portion of the pixel matrix and the neighboring run processor receives a plurality of signals from the run processor.

Again, arguments pertaining to claim 1 presented above are applicable to claims 7 and the claims depending therefrom. Instead of the run number being the number of runs in a portion of a pixel matrix, Di Zenzo teaches use of a graph representation computed from run representation. Absent a pixel matrix based representation of a binary image analysis to run-based image analysis and processing, the Di Zenzo reference cannot anticipate claim 7 limitations. There is no teaching of run processor and a neighboring run processor as claimed in claim 7. In this manner, the Examiner is respectfully requested to withdraw the rejection of claim 7 and consider allowance thereof.

The article of claim 12 comprising a medium storing software for enabling a processor-based system is deemed to be allowable at least for the reasons presented above in the context of claim 1. Because of these reasons alone, claim 12 is in condition for allowance, which is respectfully requested.

Claims 4, 9 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Di Zenzo reference in view of, "Digital Connectedness via Connectivity Graph" by Chiavetta et al (hereinafter, "Chiavetta"). The method of claim 4 includes computing the Euler number from the number of runs and the number of neighboring runs comprising subtracting the number of neighboring runs between the first portion and the second portion from a sum of the number of runs in the first portion and the second portion to arrive at a result and adding the result to an Euler number for a third portion.

Rather than teaching or suggesting a pixel matrix based computing of the Euler number of a binary image, the Chiavetta reference simply teaches connectivity graph based cylindrical algebraic decomposition of digital planes to provide a structure of representation of binary images. More specifically, a cellular decomposition of the Euclidean space E^d, into semi-algebraic cells is used for image analysis. Even if combined, the Di Zenzo and Chiavetta references, all the limitations of claim 4 cannot result based on the reasons set forth above. Thus, the Chiavetta reference fails to render claim 4 obvious to one skilled in the art. Absent a *prima facie* case of obviousness, the Examiner is respectfully requested to withdraw the § 103 rejection. Because claim 4 is now in condition for allowance, for the same reason, claims 9 and 15 are also deemed allowable being patentably distinguishable over the Di Zenzo and Chiavetta references whether considered alone or in combination. The Examiner is respectfully requested to consider all pending claims.

In view of these remarks, the application is now in condition for allowance and the Examiner's prompt action in accordance therewith is respectfully requested.

Respectfully submitted,

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